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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/592,813	06/13/2000	Philip Piro	1920/106	7669

2101 7590 05/21/2004  
BROMBERG & SUNSTEIN LLP  
125 SUMMER STREET  
BOSTON, MA 02110-1618

EXAMINER

PEREZ GUTIERREZ, RAFAEL

ART UNIT PAPER NUMBER

2686

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/592,813

Applicant(s)

Piro et al.

Examiner

Rafael Perez-Gutierrez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on February 17, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-14 is/are allowed.
- 6) ☒ Claim(s) 1 and 15 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 16-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>11</u> . |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                              |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____.  |

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### DETAILED ACTION

1. This Action is in response to Applicant's request for reconsideration filed on February 17, 2004. Applicant's request for reconsideration of the finality of the rejection of the last Office Action is persuasive and, therefore, the finality of that Action is withdrawn. **Claims 1-20** are still pending in the present application. **This Action is made NON-FINAL.**

### *Drawings*

2. New formal drawings are required in this application. See the attached Notice of Draftsperson's Patent Drawing Review for appropriate corrections.
3. **Figure 1** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference signs/numbers not mentioned in the description:
- a) On **figure 3**, reference signs/numbers **A, B, E, G, 320, 348, 350, 370, 372, 374, and 392** are not mentioned in the description;
  - b) On **figure 4**, reference numbers **1, 402-405, 407-411, 413, 420, 423, and 424** are not mentioned in the description; and
  - c) On **figure 8**, reference number **802** is not mentioned in the description.

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5. Applicant is required to submit a proposed drawing correction, corrected drawings, or an amendment, or arguments thereof, to the specification to add the reference signs/numbers in the description in reply to this Office Action. However, formal correction of the noted defect may be deferred until after the Examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the **ABANDONMENT** of the application.

***Claim Objections***

6. **Claims 1, 3, 10, 15, and 17** are objected to because of the following informalities:

a) **Claims 1 and 15** include multiple periods (“.”), a period (“.”) should only be used to end a claim. It is suggested to amend the claims to eliminate the multiple periods. For example, on **line 2 of claims 1 and 15**, replace “a.” with --a)--. Similar corrections are suggested for the other occurrences;

b) On **line 2 of claims 3 and 17** and on **line 3 of claims 10 and 15**, replace “Radio” with --radio-- before “frequency signal”;

c) On **line 1 of claim 15**, replace “Mixer” with --mixer-- after “transistor”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

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form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless -- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1 and 15** are rejected under 35 U.S.C. 102(e) as being anticipated by **Poulin et al. (U.S. Patent # 6,278,872 B1)**, of record.

Consider **claims 1 and 15**, Poulin et al. clearly show and disclose a field effect transistor (FET) mixer 200 (figure 3), comprising:

a) a balun 210 that includes a transformer having a primary winding and a secondary winding, the primary winding coupled to a radio frequency (RF) signal input 220;

b) a pair of FETs 202-208, each transistor (switch) 202-208 having a gate, a source, a drain, and a channel between the source and the drain (figure 3), wherein

i) the gates of the transistors 202-208 are coupled to one another and to a local oscillator input 225 (figure 3);

ii) one of the source and the drain of a first of the two transistors 202-208 is coupled at a node to one of the source and the drain of the other of the two transistors 202-208, and the node is coupled to ground (figure 3);

iii) the other of the source and the drain of the first of the two transistors 202-208 is coupled to one side of the secondary winding of the balun 210 and the other of the source and the drain of the second of the two transistors 202-208 is coupled to the other side of the secondary winding of the balun 210 (figure 3); and

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c) an intermediate frequency (IF) signal output 235 coupled to a point on the circuit path between the first and second transistors 202-208 (figure 3 and column 4 line 44 - column 5 line 30).

***Allowable Subject Matter***

8. **Claims 8-14** are allowed.

9. **Claims 2-7 and 16-20** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims as well as any corrections to the objections made above.

***Response to Arguments***

10. Applicant's arguments with respect to **claims 1, 8, and 15** have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

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Vice (U.S. Patent # 5,752,181) discloses a method and apparatus for reducing intermodulation distortion in a mixer.

12. Any response to this Office Action should be **faxed to (703) 872-9306 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Crystal Park II  
2021 Crystal Drive  
Arlington, VA 22202  
Sixth Floor (Receptionist)

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rafael Perez-Gutierrez whose telephone number is (703) 308- 8996. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marsha D. Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700 or call customer service at (703) 306-0377.

  
Rafael Perez-Gutierrez  
R.P.G./rpg **RAFAEL PEREZ-GUTIERREZ**  
**PATENT EXAMINER**

May 15, 2004